

REMARKS

The above-identified patent application has been amended and Applicants respectfully request the Examiner to reconsider and again examine the claims as amended.

Claims 1, 2, 4-8 and 10-40 are pending in the application. Claims 1, 2 and 10-40 are rejected. Claims 10, 17 and 40 are amended herein. Claim 41 has been cancelled by a previous amendment. No new claims have been added by this amendment and no claims have been cancelled by this amendment.

The Examiner rejects claims 1, 2, 4-8, 10-13 and 17 - 40 under 35 U.S.C. §102(b) as being anticipated by Koyanagi (U.S. Pat. No. 6,525,415).

The Examiner equates the “microbumps” in the Koyanagi reference to the “conductive interface” recited in independent claims 1 and 17.

Each of independent Claims 1 and 17 require that the conductive interface form at least part of an electrical communication path and secure together the first and second device layers.

The Koyanagi microbumps, however, only provide electrical connections. The Koyanagi microbumps do not secure the two substrates together.

Claim 1 specifically recites “...(a) a first device layer ... a first conductive via provided in the first device layer (b) a conductive interface ... (c) a second device layer... a second conductive via provided in the second device layer ... an electrical communication path between the first device layer and the second device layer ... provided by the first conductive via, the conductive interface and the second conductive via and wherein the second device layer is secured to the first device layer via the conductive interface”

Claim 17 specifically recites “... that at least a portion of the first conductive interface secures together the first and second device layers and also electrically couples the first device layer to the second device layer...”

The Koyanagi reference clearly states that an epoxy resin is used to secure the first and second device layers. The epoxy resin is clearly identified in Figs. 2 and 5 of Koyanagi as element 50 and is described e.g. at col. 4 lines 33-45; col. 8, lines 5-21; col. 12 lines 58 – col. 13, line 4 of Koyanagi.

To sustain a rejection under 35 U.S.C. §102(b), a single reference must disclose each and every element of the claimed invention. In this case, the Koyanagi reference fails to describe or suggest a conductive interface which forms at least part of an electrical communication path and secures together first and second device layers as called for in each of independent claims 1 and 17. Accordingly, Applicants submit that the rejection of independent claims 1 and 17 under 35 U.S.C. §102(b) is improper and should be removed.

Claims 2, 4-8, 10-13 and 18 - 40 each depend, either directly or indirectly from one of independent claims 1 and 17 and thus include the limitations of either claim 1 or 17, respectively. Accordingly, the rejection of Claims 2, 4-8, 10-13 and 18 - 40 under 35 U.S.C. §102(b) is also improper and should be removed,

Claim 40 calls for at least a first conductive bonding interface segment disposed between two wafers and which also provides electrical connections between at least some semiconductor elements of the first and second wafers.

Thus, Claim 40 is also patentably distinct over the Koyanagi reference since the Koyanagi reference neither describes nor suggests a first conductive bonding interface segment disposed between two wafers and which also provides electrical connections between at least some semiconductor elements of the first and second wafers.

The Examiner rejects claims 14-16 under 35 U.S.C. §103(a) as being obvious in view Koyanagi (U.S. Pat. No. 6,525,415) in combination with Nulman (U.S. Pat. No. 5,904,562).

Claims 14-16 each depend either directly or indirectly from base claim 1 and thus include each of the limitations of base claim 1. Accordingly, claims 14-16 each call for a conductive interface which forms at least part of an electrical communication path and secures together the first and second device layers.

As discussed above, Koyanagi neither describes nor suggests a conductive interface which forms at least part of an electrical communication path and secures together the first and second device layers. Nulman also fails to describe or suggest such an element. Thus, the combination of Koyanagi and Nulman cannot render obvious claims 14 –16 since the combination of the references neither describes nor suggests a conductive interface which forms at least part of an electrical communication path and secures together the first and second device layers as called for in each of claims 14 –16.

Accordingly, in view of the above Remarks, Applicants submit that Claims 1, 2, 4-8, 10-40 and the entire case are in condition for allowance and should be sent to issue and such action is respectfully requested.

The Examiner is respectfully invited to telephone the undersigning attorney if there are any questions regarding this Response or this application.

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Respectfully submitted,

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